

WHAT IS CLAIMED IS:

1. A method for generating a correction curve for correcting image data inputted to an image display unit, comprising:

a measuring step of measuring an tone reproduction characteristic in a dark surround of said image display unit and an tone reproduction characteristic in an illuminated surround of the image display unit under illumination of a predetermined luminance value;

a characteristic approximating step of approximating said tone reproduction characteristic in an illuminated surround to said tone reproduction characteristic in a dark surround in a desired input tone range of input image data; and

a correction curve generating step of generating a correction curve on the basis of the approximated tone reproduction characteristic in an illuminated surround.

2. A method for performing an image processing for image data inputted to an image display unit, using a correction curve based on an tone reproduction characteristic in an illuminated surround of said image display unit under illumination of a predetermined luminance value, said tone reproduction characteristic in an illuminated surround having been approximated to an tone reproduction characteristic in a dark surround of the image display unit.

3. The method according to claim 2, having a plurality of correction curves obtained using different said predetermined luminance values.

4. The method according to claim 2, wherein said desired input tone range comprises a middle tone range and the vicinity thereof.

5. The method according to claim 2, wherein said tone reproduction characteristic in a dark surround and said tone reproduction characteristic in an illuminated surround are normalized to a predetermined luminance range, and in the desired input tone range of input image data the normalized tone reproduction characteristic in an illuminated surround is approximated to the normalized tone reproduction characteristic in a dark surround.

6. The method according to claim 2, wherein a correction curve is subjected to a rounding processing in a low or high tone region.

7. The method according to claim 6, wherein the degree of said rounding processing is adjustable.

8. The method according to claim 2, wherein the degree of approximation is adjustable.

9. The method according to claim 3, including a selection step of selecting one of plural correction curves on the basis of a luminance value of external illumination, and wherein the input image data is subjected to an image processing on the basis of the selected correction curve.

10. The method according to claim 9, further including a step of inputting the luminance value of external illumination used in said selection step.

11. The method according to claim 9, further including a step of measuring the luminance value of external illumination used in said selection step.

12. An image display unit for performing an image processing for an inputted image data, using a correction curve based on an tone reproduction characteristic in an illuminated surround of said image display unit under illumination of a predetermined luminance value, said tone reproduction characteristic in an illuminated surround having been approximated to an tone reproduction characteristic in a dark surround of the image display unit.

13. An image display unit for performing an image processing for an inputted image data, wherein the image display unit performs the image processing for the inputted data based on a correction curve, which is sequentially generated by sequentially repeating a method for generating the correction curve comprising:

a measuring step of measuring an tone reproduction characteristic in a dark surround of said image display unit and an tone reproduction characteristic in an illuminated surround of the image display unit under illumination of a predetermined luminance value;

a characteristic approximating step of approximating said tone reproduction characteristic in an illuminated surround to said tone reproduction characteristic in a dark surround in a desired input tone range of input image data; and

a correction curve generating step of generating a correction curve on the basis of the approximated tone reproduction characteristic in an illuminated surround.

14. The image display unit according to claim 12, having a plurality of correction curves obtained using different said predetermined luminance values.

15. An image display unit for performing an image processing for an inputted image data, comprising a storage means for storing a plurality of correction curves, which are generated by repeating a method for generating the correction curve, wherein a predetermined luminance value is changed each time, comprising:

a measuring step of measuring a tone reproduction characteristic in a dark surround of said image display unit and an tone reproduction characteristic in an illuminated surround of the image display unit under illumination of the predetermined luminance value;

a characteristic approximating step of approximating said tone reproduction characteristic in an illuminated surround to said tone reproduction characteristic in a dark surround in a desired input tone range of input image data; and

a correction curve generating step of generating a correction curve on the basis of the approximated tone reproduction characteristic in an illuminated surround.

16. The image display unit according to claim 12, wherein said desired input tone range comprises a middle tone range and the vicinity thereof.

17. The image display unit according to claim 12, wherein said tone reproduction characteristic in a dark surround and said tone reproduction characteristic in an illuminated surround are normalized to a predetermined luminance range, and in the desired input tone range of input image data the normalized tone reproduction characteristic in an illuminated surround is approximated to the normalized tone reproduction characteristic in a dark surround.

18. The image display unit according to claim 12, wherein a correction curve is subjected to a rounding processing in a low or high tone region.

19. The image display unit according to claim 18, wherein the degree of said rounding processing is adjustable.

20. The image display unit according to claim 12, wherein the degree of approximation is adjustable.

21. The image display unit according to claim 14, including a selection means for selecting one of plural correction curves on the basis of a luminance value of external illumination, and wherein the input image data is subjected to an image processing on the basis of the selected correction curve.

22. The image display unit according to claim 21, further including a means for inputting the luminance value of external illumination used in said selection means.

23. The image display unit according to claim 21, further including a means for measuring the luminance value of external illumination used in said selection means.

24. A computer-readable medium having a program of instructions for execution by the computer to perform an image processing for image data inputted to an image display unit, using a correction curve based on an tone reproduction characteristic in an illuminated surround of said image display unit

under illumination of a predetermined luminance value, said tone reproduction characteristic in an illuminated surround having been approximated to an tone reproduction characteristic in a dark surround of the image display unit.

25. The computer-readable medium according to claim 24, having a plurality of correction curves obtained using different said predetermined luminance values.

26. The computer-readable medium according to claim 24, wherein said desired input tone range comprises a middle tone range and the vicinity thereof.

27. The computer-readable medium according to claim 24, wherein said tone reproduction characteristic in a dark surround and said tone reproduction characteristic in an illuminated surround are normalized to a predetermined luminance range, and in the desired input tone range of input image data the normalized tone reproduction characteristic in an illuminated surround is approximated to the normalized tone reproduction characteristic in a dark surround.

28. The computer-readable medium according to claim 24, wherein a correction curve is subjected to a rounding processing in a low or high tone region.

29. The computer-readable medium according to claim 28, wherein the degree of said rounding processing is adjustable.

30. The computer-readable medium according to claim 24, wherein the degree of approximation is adjustable.

31. The computer-readable medium according to claim 25, including a selection processing of selecting one of plural correction curves on the basis of a luminance value of external illumination, and wherein the input image data is subjected to an image processing on the basis of the selected correction curve.

32. The computer-readable medium according to claim 31, further including a processing of inputting the luminance value of external illumination used in said selection processing.

33. The computer-readable medium according to claim 31, further including a processing of measuring the luminance value of external illumination used in said selection processing.

34. A computer-readable medium storing a correction curve for performing an image processing for image data inputted to an image display unit, wherein the correction curve is based on a tone reproduction characteristic in an illuminated surround of said image display unit under illumination of a predetermined luminance value, said tone reproduction characteristic in an illuminated surround having been approximated to a tone reproduction characteristic in a dark surround of the image display unit.

35. The computer-readable medium according to claim 34, having a plurality of correction curves obtained using different said predetermined luminance values.

36. The computer-readable medium according to claim 34, wherein said

desired input tone range comprises a middle tone range and the vicinity thereof.

37. The computer-readable medium according to claim 34, wherein said tone reproduction characteristic in a dark surround and said tone reproduction characteristic in an illuminated surround are normalized to a predetermined luminance range, and in the desired input tone range of input image data the normalized tone reproduction characteristic in an illuminated surround is approximated to the normalized tone reproduction characteristic in a dark surround.

38. The computer-readable medium according to claim 34, wherein a correction curve is subjected to a rounding processing in a low or high tone region.

39. The computer-readable medium according to claim 38, wherein the degree of said rounding processing is adjustable.

40. The computer-readable medium according to claim 34, wherein the degree of approximation is adjustable.